

WHAT IS CLAIMED IS:

1. An ignition coil device comprising:

a cylindrical secondary spool;

a secondary coil of a plurality of secondary windings wound
5 around an outer peripheral surface of the secondary spool;

a coil insulating resin material that is impregnated into
and cured in spaces between the secondary windings;

a primary spool arranged on an outer peripheral side of the
secondary windings;

10 a primary coil of a plurality of primary windings wound
around an outer peripheral surface of the primary spool; and

a high voltage tower that is arranged on one end side in
an axial direction of these parts and is mounted with an ignition
plug,

15 wherein at least one of the primary spool and the high
voltage tower is integrally molded with the coil insulating
resin material out of a same resin.

2. The ignition coil device as claimed in claim 1, wherein
20 spaces between the primary windings are not impregnated with
resin.

3. A method of manufacturing an ignition coil device, the
method comprising:

25 a spool arranging step for arranging a secondary spool
having a secondary coil wound around its outer peripheral
surface in a cavity of a mold having an inside surface formed

in a shape opposite to at least one of a primary spool and a high voltage tower; and

a part molding step for filling resin into the cavity in which the secondary spool is arranged, and for curing the resin to integrally mold out of the resin at least one of the primary spool and the high voltage tower with a coil insulating resin material impregnated into spaces between windings of the secondary coil.

4. The method of manufacturing an ignition coil device as claimed in claim 3, wherein the resin is an injection molding resin, and wherein the part molding step is an injection molding step of filling the injection molding resin into the cavity.

5. A method of manufacturing an ignition coil device having a cylindrical secondary spool, a secondary coil of a plurality of secondary windings wound around an outer peripheral surface of the secondary spool, a coil insulating resin material that is impregnated into and cured in spaces between the secondary windings, a primary spool arranged on an outer peripheral side of the secondary windings, a primary coil of a plurality of primary windings wound around an outer peripheral surface of the primary spool, and a high voltage tower that is arranged on one end side in an axial direction of these parts and is mounted with an ignition plug, wherein at least one of the primary spool and the high voltage tower is integrally molded with the coil insulating resin material out of a same resin,

the method comprising:

5 a spool arranging step for arranging the secondary spool having the secondary coil wound around its outer peripheral surface in a cavity of a mold having an inside surface formed in a shape opposite to at least one of the primary spool and the high voltage tower; and

10 a part molding step for filling resin into the cavity in which the secondary spool is arranged, and for curing the resin to integrally mold out of the resin at least one of the primary spool and the high voltage tower with the coil insulating resin material impregnated into spaces between the secondary windings.